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ABSTRACT

The success of a reading laboratory using a learning modality approach was studied. The null hypothesis that there would be no significant difference among the levels of primary learning modality, sex, and race on the posttest of reading achievement for 31 second grade students, who read below grade level was tested at the 0.05 level after the effects of the pretest were statistically removed. Each student worked in the Learning Laboratory 30 minutes a day, 4 days a week, for 3 months. Modality was assessed with the Swassing-Barbe Modality Index. Modality instructional activities included auditory, visual, and kinesthetic activities. Modality preference was not found to significantly interact with the method of teaching reading, although the results are considered to be inconclusive due to the small sample size, lack of control group, and an inappropriate dependent measure in the post-test, the Iowa Test of Basic Skills. (SLD)

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Program Evalutation of a Reading Laboratory for a Learning Modality Instructional Approach

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PROGRAM EVALUATION OF A READING LABORATORY FOR A LEARNING MODALITY INSTRUCTIONAL APPROACH

Research indicates that children who experience difficulty learning to read may be receiving instruction in a learning style which is incompatible with their own predominant learning modality (Barbe & Swassing, 1979). According to the researchers who developed the Swassing-Barbe Modality Index, an individual's learning style, or modality, can best be described as the sensory channel through which information is perceived and processed most efficiently. The three modalties used most often for learning are visual, auditory, and kinesthetic. Teacher strengths: visual,29%; auditory, 29%; kinesthetic, 2% and mixed, 40%. Student strengths: visual,30%; auditory, 25%; kinesthetic,15% and mixed 30%. Studies indicate a teacher teaches the way he or she learns best (Stensrud & Stensrud, 1983). Swassing and Barbe recommend that teachers present the lesson in their most comfortable modality and if a student does not grasp the lesson, then remediate in the child's strongest modality (Milone, 1981). However, in a review of the literature on modality preferences and the teaching of reading it was found that it did not make a significant difference when teachers taught to the students'strengths (Tarver & Dawson, 1978). These researchers suggested that for learning disabled students, the solution to the deficit-oriented versus strength-oriented issue would be a multisensory approach.

Another finding in this review was that there were some differences in the effect of modality preference of students and reading achievement, with auditory learners showing superiority for both reading and spelling, especially in the first grade. This was confirmed in a synthesis of modality studies by Derevensky (1978). This study found that the auditory mode of learning was preferred by six-year-olds, with a gradual transition evidenced until, by age 16, the visual mode became superior.

In a study conducted with low socioeconomic first grade students, it was found that boys may be more likely to have visual preferences, while girls may have more auditory. Of 33 girls, 14 were auditory, 11 visual, and 8 kinesthetic learners. Of 42 boys, 9 were auditory, 19 visual, and 14 kinesthetic learners (Cullinan, Ringler, & Smith, 1969). Interaction between race and modality preferences was not reported.

The present study investigated whether a reading laboratory using a learning modality approach was successful. Tested at the .05 level was the null hypothesis, there will be no significant difference between levels of primary learning modality, sex, and race on the post test of reading achievement (Iowa Test of Basic Skills: ITBS), for a group of second grade students reading below grade level after the effects of the pretest have been removed statistically.

Subjects: The subjects for the study were 31 second graders, 17 of which were caucasian and 14 were black, hispanic and oriental. The school was located in a large city in South Florida. Most of the students were from a low socioeconomic background. Seventeen boys and 14 girls were given a ITBS pretest. The Swassing-Barbe Modality Index was administered and students were assigned to one of three modality instruction groups, based upon the student's modality strength. Following assignment, each student worked in the Learning Lab one-half hour a day, four days a week for three months. Students received initial instruction in their primary modality, with follow-up practice activities in their secondary modalities. At the end of 3 months, the ITBS reading post achievement test was administered. Modality instructional activities included: (auditory) language master, tapes & records, listening to stories & oral skill instruction; (visual) computer instruction, view masters, games; (kinesthetic) haptic activities with clay, sandpaper, yarn, games, role playing, and dramatization.

Results:

Results of the study were submitted to a Three-way Analysis of Covariance test of significance for levels of race, sex and primary modality on the post achievement reading test, ITBS, after the effect of the pre-ITBS was removed. No significant differences were found on the

interaction effects or the main effects. Correlations between race and modality were low, .09, and not significant. Findings substantiate studies of sex, but do not substantiate the Swassing-Barbe theory (see tables). Numbers of subjects in preferred modalities were: visual: females, 6 ; males 7 ; auditory: females, 6 ; males 7 ; kinesthetic: females, 2 ; males, 3. Breakdown by race and sex: caucasian males, (visual) 4; (auditory) 4; (kinesthetic) 1; black, hispanic, & oriental males, (visual) 3; (auditory) 3, (kinesthetic) 2; caucasian females, (visual) 3; (auditory) 4; (kinesthetic) 1; black, hispanic, & oriental females, (visual) 3; (auditory)4, (kinesthetic) 1.

Conclusions: The present study substantiates the literature that modality preference has not been demonstrated to interact significantly with method of teaching reading (Tarver & Dawson, 1978). However, it has been noted that some of the modality studies have methodological limitations, such as: small sample size, inadequate teaching methods, and inadequate length of intervention (Tarver & Dawson,1978).

The limitations of the present study are similar to reported modality studies, that is, small sample size, lack of a control group, and an inappropriate dependent measure, The Iowa Test of Basic Skills (ITBS). This measure may be insensitive to the abilities of this particular group of second grade students. Also,more students would add to the power of the test of the hypothesis. Perhaps correlations to other tests which proport to measure the same thing would

guide the researcher to the sensitivity of the dependent measures. The students in this group seemed to regress to the mean in obvious degrees. This regression seems to indicate "guessing" on the pre ITBS. Perhaps another measure of intelligence, or academic abilities, would best be used to establish the sample.

The evidence from the present study is inconclusive and indicates that future research in the area of learning modalities should focus upon a larger sample of students, a control group, and a more appropriate dependent measure

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TABLE 1

Simple Correlations, Adjusted Means and Standard Deviations

Variables	Sex	Race	Modality	Pre-ITBS	Post-ITBS	Tea.Mod.
Sex		.15	.03	-.18	-.24	.04
Race			.09	-.08	-.26	-.27
Modality				.06	-.22	.19
Pre-ITBS					-.22	.17
Post-ITBS						-.08

SEX	Means	St. Deviations	Number
Males	30.60	2.85	15
Females	23.00	-4.75	9
Race			
White	31.27	3.52	13
Other	23.27	-4.16	11
Modality			
Visual	31.43	3.68	9
Auditory	27.82	6.07	12
Kenesthetic	16.42	-11.33	3
Total	27.75		24

TABLE 2

Three-way Analysis of Variance Summary

Source of Variation	Sum of Squares	DF	Mean Squares	F	Prob.
Covariate Preiths	334.38	1	334.38	1.044	.37
Sex	307.07	1	307.07	0.958	.35
Race	330.98	1	330.98	1.033	.33
Modality	481.79	1	240.90	0.752	.49
Sex by Race	422.06	1	422.06	1.317	.27
Sex by Modality	848.92	2	424.46	1.325	.30
Race by Modality	580.47	2	290.23	0.906	.43
Sex by Race by Modality	882.83	1	882.83	1.665	.19
Total	9712.50	23	422.28		